

## Release Notes

# HP StorageWorks Fabric OS 4.2.2a

Fourth Edition (September 2004)

**Part Number:** AV-RVUUD-TE

This document contains information about Fabric OS version 4.2.2a firmware. In the event of conflicting information between these Release Notes and other documents in this product release, the Release Notes take precedence.

For the latest version of these Release Notes and other Fabric OS 4.2.x documentation, access the HP storage web site at: <http://www.hp.com/country/us/eng/prodserv/storage.html>.



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Fabric OS 4.2.2a Release Notes

Fourth Edition (September 2004)

Part Number: AV-RVUUD-TE

# About This Document

This section identifies the audience of these Release Notes and provides a high-level description of the information it contains.

## Release Notes Information

These Release Notes cover the following major topics:

- [Overview](#), page 3
- [Documentation](#), page 5
- [Standards Compliance](#), page 6
- [Important Notes](#), page 7
- [New and Modified CLI Commands](#), page 23
- [Documentation Updates](#), page 48

## Audience

These Release Notes are intended for systems administrators and technicians who are responsible for installing, operating, and maintaining Fabric OS version 4.2.2a.

## Overview

HP Fabric OS 4.2.2a is a maintenance release containing fixes, enhancements, and new features to HP Fabric OS 4.1.2:

- Adds support for the HP StorageWorks SAN Switch 2/8V, HP StorageWorks SAN Switch 2/8V Power Pak, HP StorageWorks SAN Switch 2/16V, HP StorageWorks SAN Switch 2/16V Power Pak, HP StorageWorks SAN Switch 2/16N, and HP StorageWorks SAN Director 2/128.
- Reduces fabric configuration downtime:
  - Extended-edge PID for mixed fabrics eliminates host reboot for hosts that statically bind PIDs.

- Improves fabric diagnostics:
  - Supports the `pathInfo` command, which displays path information between any two ports of a fabric.
  - Monitors compact flash utilization and cleans the file systems when encountering high utilization.
  - Improves `supportShow` functionality.
  - When there are hardware watchdog failures, captures a kernel trace dump prior to reset.

## Supported Switches

Fabric OS v4.2.2a supports the following switches:

- HP StorageWorks SAN Switch 2/8V
- HP StorageWorks SAN Switch 2/8V Power Pak
- HP StorageWorks SAN Switch 2/16V
- HP StorageWorks SAN Switch 2/16V Power Pak
- HP StorageWorks SAN Switch 2/16N
- HP StorageWorks SAN Switch 2/32
- HP StorageWorks SAN switch 2/32 Power Pak
- HP StorageWorks Core Switch 2/64
- HP StorageWorks Core Switch 2/64 Power Pak
- HP StorageWorks SAN Director 2/128
- HP StorageWorks SAN Director 2/128 Power Pak

## Technical Support

Contact Hewlett-Packard support for hardware, firmware, and software support, including product repairs and part ordering. To assist your support representative and to expedite your call, have the following information available:

- Technical support contact number, if available
- Switch model
- Switch operating system version
- Error messages received

- Output from supportshow command
- Detailed problem description and specific questions
- Description of any troubleshooting steps already performed and results

## Documentation

Additional documentation, including white papers and best practices documents, is available at the HP web site:

<http://welcome.hp.com/country/us/eng/prodserv/storage.html>.

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**Note:** HP has made every effort to provide you with the most up-to-date Web retrieval procedures available at time of print. Note, however, that Web page links are subject to change.

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To access the technical documentation:

1. Locate the **Networked storage** section of the Web page.
2. Under **Networked storage**, locate the **By type** subsection.
3. Click **SAN infrastructure**. The **SAN infrastructure** page displays.
4. Locate the **Fibre Channel Switches** section.
5. Locate the **B-Series Fabric** subsection.
6. Click the name of the appropriate switch. The switch overview page displays.
7. Locate the **Product information** section.
8. Click **Technical documentation**.
9. Select the applicable documents.

For information about Fibre Channel standards, visit the following web site:

<http://www.t11.org>.

## Standards Compliance

HP products conform to these standards in a manner consistent with accepted engineering practices and procedures. In certain cases, HP may add proprietary supplemental functions to those specified in the standards. We verify conformance with Fibre Channel Standards by subjecting our switches to SANmark Conformance Tests developed by the Fibre Channel Industry Association. Our switches have earned the SANmark logo indicating such conformance. SANmark is a limited testing program and does not test all standards or all aspects of standards.

HP Fabric OS 4.2.2a conforms to the following Fibre Channel Standards:

- FC-AL ANSI X3.272: 1996
- FC-AL-2 NCIT S 332: 1999
- FC-FLA NCIT S TR-20: 1998
- FC-GS-2 NCIT S 348-2000 Rev 7.01
- FC-FG ANSI X3.289: 1996
- FC-PH ANSI X3.230: 1994
- FC-PH-2 ANSI X3.297: 1997
- FC-PH-3 ANSI X3.303: 1998
- FC-PLDA NCIT S TR-19: 1998
- FC-SW-2 Rev 5.3
- FC-VI Rev 1.61
- FC-MI Rev 1.92
- FC-BB Rev 4.7
- FC-FS Rev 1.7
- FC-BB-2 Rev 5.3
- IPFC RFC 2625
- FCP ANSI X3.269: 1996
- FCP-2 Rev 7

## Important Notes

This section provides information you should be aware of when running Fabric OS 4.2.2a.

## OS Requirements

HP recommends using the *latest* software release versions to get the greatest benefit from the SAN. Refer to the following web site for information:  
<http://www.hp.com>

## Maximizing Fabric Availability During HP StorageWorks SAN Switch 2/32 Hot Code Activation

During code activation on a HP StorageWorks SAN Switch 2/32 running Fabric OS 4.1.0 or later, data keeps flowing between hosts and storage devices. However, fabric services are unavailable for a period of approximately 50 to 55 seconds. Possible disruption of the fabric can be minimized by ensuring that switches logically adjacent to the SAN Switch 2/32 (directly connected via an ISL) are running, at the minimum, Fabric OS v2.6.1 or later, v3.1.0 or later, or v4.1.0 or later. More information is available in the firmware download section of the *HP StorageWorks Fabric OS 4.2.x Procedures User Guide*.

## Mixed Fabric Environment with Different Switch Platforms

Fabric OS v2.6.2, v3.1.2, and v4.2.x introduced a new switch PID format: Extended Edge PID (Format 2). Extended Edge PID is useful if you introduce a Fabric OS 4.2.2a switch into a fabric consisting solely of Fabric OS v2.x/v3.x switches. Before adding a Fabric OS v4.2.2a switch to such a fabric, refer to the *HP StorageWorks Fabric OS 4.2.x Procedures User Guide* for information on the Extended Edge PID format.

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**Note:** Switches must operate with Fabric OS v2.6.2, v3.1.2, v4.2.x or later to use the Extended Edge PID format.

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If Extended Edge PID is set (before a downgrade from the current Fabric OS release to an earlier Fabric OS release that does not support the Extended PID format), PID needs to be set back to a supported format, such as Core PID (format 1) or native PID (format 0).

## Advanced Web Tool Updates

When using a mixed fabric—that is, a fabric that contains v4.x, v3.x, and v2.x switches—HP recommends that you use the most advanced switches to control the fabric. For example, use the 4.x switches as the primary Fibre Channel Switch (FCS), as the location to perform zoning tasks, and as the time server. HP also recommends that you use the most recently released firmware to control the fabric.

If you use Advanced Web Tools to change the switch name, the HP StorageWorks SAN Director 2/128 Telnet console prompt does not update to the new name until a new Telnet window is opened.

If a dialog box is displayed from the Switch Admin window of Advanced Web Tools and the user selects another dialog box from Advanced Web Tools, a window display error occurs. This is a known issue in Java™ 1.3. HP recommends using Java 1.4.1\_03.

## Two-Domain and Four-Domain Fabric Licensing

If your fabric includes a switch with a license for a limited number of switches in the fabric and the fabric exceeds the limit, Advanced Web Tools allows a 45-day grace period during which you can still monitor the switch. Advanced Web Tools periodically displays warning messages.

These messages warn you that your fabric size exceeds the supported switch configuration limit and tells you how long you have before Advanced Web Tools will be disabled. After the 45-day grace period, you will no longer be able to launch Advanced Web Tools from the switch if it still exceeds the limit.

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**Note:** Two-domain and four-domain fabric licensing is applicable only to 2 Gb/s switches.

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## Browser Window Response After Failover

A browser window might stop responding after an HA failover immediately after a zoning configuration is enabled or disabled. It is likely that the web daemon was terminated by the HA failover before the HTTP request was returned.

If the HA module does not respond, close the window and relaunch the module. If the module is locked, shut down and relaunch the Web Tools application.

## Switch View Display Issue

If you frequently enable or disable a switch or perform a power cycle, the Switch View may not display properly. Launching other Web Tools components might then cause a browser crash.

Upgrade your Java Plug-in to version 1.4.1\_03 or later, if you are running Windows® XP.

## Installing Mozilla 1.4 on Solaris 8 and Solaris 9

For instructions to install Mozilla 1.4 on Solaris 8 and Solaris 9, go to the web site:

[http://ftp.mozilla.org/pub.mozilla.org/mozilla/releases/mozilla1.4/mozilla-sparc-sun-solaris2.8\\_1.4.readme](http://ftp.mozilla.org/pub.mozilla.org/mozilla/releases/mozilla1.4/mozilla-sparc-sun-solaris2.8_1.4.readme)

For a list of operating systems that Mozilla runs on, go to:

<http://ftp.mozilla.org/pub.mozilla.org/mozilla/releases/mozilla1.4>

For general information on Java for HP-UX, go to:

<http://www.hp.com/products1/unix/java/>

## Mozilla Browser Support for Switch Admin Module

The Mozilla browser does not support the Switch Admin module properly in Fabric OS v2.6.x. In Fabric OS v2.6.2, a warning message is displayed. No warning message is displayed in other v2.6.x versions.

**Workaround:** Use Netscape 4.7.7 or later.

## Browser, OS, and Java Plug-in Support

Advanced Web Tools browser, operating system, and Java Plug-in support is updated for Fabric OS v4.2.2a. **Table 1** identifies the supported browsers, operating systems, and Java Plug-ins for this release. Go to the <http://www.hp.com> web site for the latest list of supported operating systems.

**Table 1: Browsers, Operating Systems, and Java Plug-ins**

Operating System	Browser	Java Plug-in
HP-UX 11.00	Mozilla 1.4 or later	1.4.2_00 or later (up to but not including 1.5)
HP-UX 11.11 (PA 32-bit & PA 64-bit)	Mozilla 1.4 or later	1.4.2_00 or later (up to but not including 1.5)

**Table 1: Browsers, Operating Systems, and Java Plug-ins (Continued)**

<b>Operating System</b>	<b>Browser</b>	<b>Java Plug-in</b>
HP-UX 11.23 (IA 64-Bit)	Mozilla 1.4 or later	1.4.2_00 or later (up to but not including 1.5)
HP-UX 11.i	+NN7.0	1.4.1_02
HP Tru64 UNIX® 5.1B	Mozilla 1.4	1.4.1_02
HP Tru64 UNIX 5.1A, 5.1b	Mozilla 1.4	1.4.1_02
HP OpenVMS 7.3-1 (64-bit)	Secure Web Browser (SWB 1.4)	1.4.1_02
HP OpenVMS 7.3-2 (64-bit)	Secure Web Browser (SWB 1.4)	1.4.1_02
HP Open VMS 7.3-x (Itanium)	Secure Web Browser (SWB 1.4)	1.4.1_02
AIX 5.1	Mozilla 1.4	1.4.1_01
AIX 5.2	Mozilla 1.4	1.4.1_01
AIX 5.3	Mozilla 1.4	1.4.1_01
Red Hat Linux® 7.3	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Hat Linux 8.0	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Hat Enterprise Linux AS 2.1 (IA32)	NN7.02	1.4.1_03
Red Hat Enterprise Linux AS 2.1 (IA32 & IA64)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Hat Enterprise Linux AS 3.0 (IA32 & IA64)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Red Flag Linux (32-bit)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
United Linux 1.0	NN7.02	1.4.1_03
United Linux 1.0 SUSE 8 (IA32)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
United Linux 1.0 SUSE 8 (IA64)	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)

**Table 1: Browsers, Operating Systems, and Java Plug-ins (Continued)**

<b>Operating System</b>	<b>Browser</b>	<b>Java Plug-in</b>
United Linux 2.0	Mozilla 1.4 or later	1.4.2_02 or later (up to but not including 1.5)
Solaris 2.8, 2.9	Mozilla 1.2.1 (recommended) Netscape 7.0 Netscape Communicator 4.78	1.4.2 1.4.1_03
Solaris 7, 8, 9, 10	Mozilla 1.2.1 (recommended) Netscape 7.0 Netscape Communicator 4.78	1.4.2
Windows 2000	IE 6.0 SP1	1.3.1_04 or 1.4.1_02 (recommended)
Windows 2000 SP3	IE 6.0 SP1	1.4.1_03
Windows 2003	IE 6.0 SP1	1.3.1_04 or 1.4.1_02 (recommended)
Windows XP	IE 6.0 SP1	1.4.1_03 (recommended)
Windows Server 2003 (IA32)	IE 6.0	1.4.1_03
Windows NT 4.0 SP6a	IE 6.0 SP1	1.4.1_03

The additional supported browsers, operating systems, and Java Plug-ins introduce limitations when using mixed OS versions in Advanced Web Tools v4.2.x. These limitations are described in [Table 2](#).

**Table 2: Limitations Using Mixed OS Versions**

Launch Switch Environment	Issue and Workaround
<b>Firmware:</b> Fabric OS v2.6.x <b>Operating System:</b> Solaris <b>Browser:</b> Mozilla	<p>The Switch Admin does not launch correctly. If you try to launch the Switch Admin using Fabric OS v2.6.2 on a Solaris operating system with a Mozilla browser, a warning dialog displays, telling you to use the Netscape browser.</p> <p>If you try to launch the Switch Admin using Fabric OS v2.6.1 or earlier on a Solaris operating system with a Mozilla browser, the Switch Admin fails and no warning is displayed.</p> <p><b>Workaround:</b> Although the Netscape browser is not supported by Web Tools for switches running Fabric OS v2.6.2, 3.1.2, 4.2.0 or later, if you must access the Switch Admin on a switch running Fabric OS v2.6.x from a Solaris operating system, use the Netscape 4.77 browser.</p>
<b>Firmware:</b> version <i>earlier</i> than Fabric OS v2.6.2, v3.1.2, or v4.2.0 with secure mode enabled <b>Operating System:</b> Solaris <b>Browser:</b> Mozilla	<p>If you try to launch the Switch Admin, Zoning, Fabric Watch, or High Availability Admin using firmware versions earlier than v2.6.2, v3.1.2, or v4.2.0 on a Solaris operating system with a Mozilla browser, the browser might crash due to a buffer overflow problem with Mozilla.</p> <p><b>Workaround:</b> Although the Netscape browser is not supported by Web Tools for switches running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later, if you must access the Switch Admin, Zoning, Fabric Watch, or High Availability Admin on a switch running firmware versions earlier than v2.6.2, v3.1.2, or v4.2.0, from a Solaris operating system, use the Netscape 4.77 browser.</p>
<b>Firmware:</b> version <i>earlier</i> than Fabric OS v2.6.2, v3.1.2, or v4.2.0 <b>Operating System:</b> any supported operating system (with supported browser) <b>Browser:</b> any supported browser (on supported operating system)	<p>When trying to access a switch running firmware versions Fabric OS v2.6.2, v3.1.2, or v4.2.0 from the launch switch, Switch Explorer will display a null pointer exception, and the SwitchInfo applet will not display; Switch Explorer does not work properly with switches running the latest firmware.</p> <p><b>Workaround:</b> Use a launch switch running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later to access the switch.</p>

**Table 2: Limitations Using Mixed OS Versions (Continued)**

Launch Switch Environment	Issue and Workaround
<p><b>Firmware:</b> version <i>earlier</i> than Fabric OS v2.6.2, v3.1.2, or v4.2.0</p> <p><b>Operating System:</b> any supported operating system (with supported browser)</p> <p><b>Browser:</b> any supported browser (on supported operating system)</p>	<p>When trying to perform end-to-end monitoring (Performance Monitor) on a SAN Director 2/128 or SAN Switch 2/8V, the SAN Director 2/128 or SAN Switch 2/8V is displayed as a 16-port switch.</p> <p><b>Workaround:</b> For a SAN Switch 2/8V, ignore the extra ports. For a SAN Director 2/128, use a launch switch running Fabric OS v4.2.0 or later to perform end-to-end monitoring on the switch.</p>
<p><b>Firmware:</b> version <i>earlier</i> than Fabric OS v2.6.2, v3.1.2, or v4.2.0</p> <p><b>Operating System:</b> any supported operating system (with supported browser)</p> <p><b>Browser:</b> any supported browser (on supported operating system)</p>	<p>When trying to perform zoning on a SAN Director 2/128 or SAN Switch 2/8V, the SAN Director 2/128 or SAN Switch 2/8V is displayed as a 16-port switch.</p> <p><b>Workaround:</b> If you are running Secure Fabric OS, select a switch running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later as the primary FCS switch. If you are not running Secure Fabric OS, use a launch switch running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later to perform zoning on the switch.</p>
<p><b>Firmware:</b> Fabric OS v2.6.2, v3.1.2, or v4.2.0</p> <p><b>Operating System:</b> any supported operating system (with supported browser)</p> <p><b>Browser:</b> any supported browser (on supported operating system)</p>	<p>The Name Server table does not display properly for a switch running firmware versions earlier than Fabric OS v2.6.2, v3.1.2, or v4.2.0.</p> <p><b>Workaround:</b> If secure mode is enabled, select a switch running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later as the primary FCS switch. If secure mode is not enabled, use a launch switch running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later to access the Name Server table on the switch.</p>
<p><b>Firmware:</b> version <i>earlier</i> than Fabric OS v2.6.2, 3.1.2, or 4.2.0</p> <p><b>Operating System:</b> Solaris</p> <p><b>Browser:</b> Netscape</p>	<p>Any switches running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later are unsupported through Netscape.</p> <p><b>Workaround:</b> The Netscape browser is not supported by Web Tools for switches running Fabric OS v2.6.2, v3.1.2, or v4.2.0 or later. Use the Mozilla browser to manage all of your switches from a Solaris operating system.</p>
<p><b>Firmware:</b> version <i>earlier</i> than Fabric OS v2.6.1, v3.0.x, or v4.0.x</p> <p><b>Operating System:</b> Windows</p> <p><b>Browser:</b> Internet Explorer</p>	<p>When you are trying to run Fabric View, the browser might crash.</p> <p><b>Workaround:</b> Use a launch switch that runs Fabric OS v2.6.1, v3.0.x, or v4.0.x or later so that you can use Switch Explorer (not Fabric View).</p>

## Other Notes

[Table 3](#), [Table 4](#), and [Table 5](#) list important information for Fabric OS v4.2.2a.

**Table 3: SAN Switch 2/8V and SAN Switch 2/16V Information**

SAN Switch 2/8V and SAN Switch 2/16V	Description								
SWL and LWL SFP modules	<p>To ensure proper insertion of SFPs into the SAN Switch 2/8V and SAN Switch 2/16V, use only supported SFPs. At the time of release, the following SFPs were certified for use with these switches:</p> <table><thead><tr><th data-bbox="437 537 486 563">SFP</th><th data-bbox="807 537 961 563">Part Number</th></tr></thead><tbody><tr><td data-bbox="437 571 688 597">Short wavelength SFP</td><td data-bbox="807 571 1134 597">A6515A* or 300834-B21**</td></tr><tr><td data-bbox="437 606 764 632">Long wavelength SFP, 10 km</td><td data-bbox="807 606 1134 632">A6516A* or 300835-B21**</td></tr><tr><td data-bbox="437 641 764 667">Long wavelength SFP, 35 km</td><td data-bbox="807 641 990 667">300836-B21**</td></tr></tbody></table> <p>* premerger HP part number ** premerger Compaq part number</p>	SFP	Part Number	Short wavelength SFP	A6515A* or 300834-B21**	Long wavelength SFP, 10 km	A6516A* or 300835-B21**	Long wavelength SFP, 35 km	300836-B21**
SFP	Part Number								
Short wavelength SFP	A6515A* or 300834-B21**								
Long wavelength SFP, 10 km	A6516A* or 300835-B21**								
Long wavelength SFP, 35 km	300836-B21**								

**Table 3: SAN Switch 2/8V and SAN Switch 2/16V Information (Continued)**

SAN Switch 2/8V and SAN Switch 2/16V	Description								
WWNs	<p>Brocade has consumed the majority of WWN numbers originally allocated by the IEEE. This is due to the rate of switch shipments and the preallocation of World Wide Name (WWN) blocks to current and past switch products.</p> <p>With the introduction of the SAN Switch 2/8V and SAN Switch 2/16V products, a new block of WWN numbers was required for the projected switch volumes. In response, in addition to the current WWN, Brocade uses the IEEE Organizationally Unique Identifier (OUI) that was formally owned by Rhapsody Networks (now a part of Brocade Communications Systems, Inc.) for the new block of WWNs. The official IEEE OUI database has been updated to reflect this ownership change.</p> <p>Network and fabric management applications that rely on the use of the original Brocade OUI (00:60:69) to identify Brocade network elements must be updated from the IEEE Web site database (location below) to also include the new Brocade OUI (00:05:1E).</p> <p><b>IEEE OUI and Company_id Assignments:</b></p> <p><b>NEW</b></p> <table> <tr> <td>00-05-1E (hex)</td> <td>Brocade Communications Systems, Inc.</td> </tr> <tr> <td>00051E (base 16)</td> <td>Brocade Communications Systems, Inc. 1745 Technology Drive San Jose CA 95110 UNITED STATES</td> </tr> </table> <p><b>OLD</b></p> <table> <tr> <td>00-60-69 (hex)</td> <td>BROCADE COMMUNICATIONS SYSTEMS, Inc.</td> </tr> <tr> <td>006069 (base 16)</td> <td>BROCADE COMMUNICATIONS SYSTEMS, Inc. 1901 GUADALUPE PKWY SAN JOSE CA 95131 UNITED STATES</td> </tr> </table> <p><b>IEEE list of public OUI assignments:</b>  <a href="http://standards.ieee.org/regauth/oui/index.shtml">http://standards.ieee.org/regauth/oui/index.shtml</a></p> <p>If a management application is using a Fabric Access version earlier than 3.0.2, SAN Switch 2/8V and SAN Switch 2/16V are displayed as Rhapsody switches.</p>	00-05-1E (hex)	Brocade Communications Systems, Inc.	00051E (base 16)	Brocade Communications Systems, Inc. 1745 Technology Drive San Jose CA 95110 UNITED STATES	00-60-69 (hex)	BROCADE COMMUNICATIONS SYSTEMS, Inc.	006069 (base 16)	BROCADE COMMUNICATIONS SYSTEMS, Inc. 1901 GUADALUPE PKWY SAN JOSE CA 95131 UNITED STATES
00-05-1E (hex)	Brocade Communications Systems, Inc.								
00051E (base 16)	Brocade Communications Systems, Inc. 1745 Technology Drive San Jose CA 95110 UNITED STATES								
00-60-69 (hex)	BROCADE COMMUNICATIONS SYSTEMS, Inc.								
006069 (base 16)	BROCADE COMMUNICATIONS SYSTEMS, Inc. 1901 GUADALUPE PKWY SAN JOSE CA 95131 UNITED STATES								

**Table 4: SAN Director 2/128 Information**

<b>SAN Director 2/128</b>	<b>Description</b>
CP blade	The SAN Director 2/128 CP contains electronics that provide internal routing bandwidth, and are always active on both CPs. Removal of a CP might affect user performance and therefore should not occur until a replacement CP is ready to be installed.
Power supplies	A fully configured SAN Director 2/128 with eight port cards and two CPs is capable of running on a single power supply. Therefore, two power supplies provide 2N redundancy. To maintain redundancy of AC input, one power supply must be in an even-numbered slot and one in an odd-numbered slot. The default configuration is for the power supplies to be in slots 1 and 2.
Card seating	Follow the procedure below to ensure that Port Cards and Control Processor (CP) cards are properly installed into your SAN Director 2/128: <ol style="list-style-type: none"> <li>1. Install the leading edge of the CP or Port Card into the appropriate slot on the card cage.</li> <li>2. Push the front surface of the card (SFP cage side) carrier near the center with your hand until the top and bottom ejectors engage the upper and lower ejector plates (do not hold onto the ejectors as you push).</li> <li>3. Press down on both ejectors at the same time with equal force to seat the blade.</li> <li>4. Tighten the top thumb screw first.</li> </ol>

**Table 5: Fabric OS Area Information**

<b>Fabric OS Area</b>	<b>Description</b>
Boot over SAN	Boot over SAN JNI 6460 fails to initialize when switch port speed is configured to 2 Gb/s. The JNI 6460 HBA operates with the FC switch as long as the port speed setting is autonegotiate or 1 Gb/s. When the switch port is set to 2 Gb/s, the JNI 6460 HBA is unable to initialize.
Compatibility	VC encoding mode is not supported with Fabric OS v4.2.0 and later.

**Table 5: Fabric OS Area Information (Continued)**

Fabric OS Area	Description
Ethernet port IP addresses	When a Core Switch 2/64 or SAN Director 2/128 fails over to its standby CP for any reason, the IP addresses for the two logical switches move to that CP blade's Ethernet port. This might cause informational ARP address reassignment messages to appear on other switches in the fabric. This is normal behavior, because the association between the IP addresses and MAC addresses has changed.
Extended links	For 50-km extended links at 1 Gb/s, you have a choice of configuring a port as an LD port or an L1 port. LD ports maintain full link speeds of 103 Mb/s. L1 ports have link speeds of 99 Mb/s. You can configure two ports in a quad as L1 ports, but you can only configure one port in a quad as an LD port
Fabric configuration	During fabric configuration, the countdown message that used to appear on the console is removed starting with Fabric OS v2.6.2, v3.1.2, and v4.2.x. The fabric reconfiguration message is now captured in the error log. For details, refer to the diagnostic messages in the <i>HP StorageWorks Diagnostic and System Error Messages 4.2.x Reference Guide</i> .
Fabric Device Management Interface (FDMI)	An HBA is allowed to register even though the originating port is not on the HBA's registered port list. This is intended behavior, included to test error cases.
Fabric OS: CLI commands, failover, and port disable	Changing port configurations during a failover might cause ports to be disabled. Reissue the command after the failover is complete to bring the ports online.
Fabric OS: commands	Under the root account, issuing Fabric OS commands in parallel through scripts could cause the kernel task to consume excessive memory. <b>Workaround:</b> When using scripts to issue Fabric OS commands, wait for one command to finish before issuing another.
Fabric OS: switch beaconing	Switch beaconing is not preserved across a failover. If you start beaconing, a failover causes all lights to stop flashing. <b>Workaround:</b> If this occurs, reissue the command to resume switch beaconing.

**Table 5: Fabric OS Area Information (Continued)**

Fabric OS Area	Description
Fabric OS: switch reboot and blade repair	<p>Switch reboot fails in the SAN Director 2/128 if there are faulty port blades.</p>
	<p><b>Note:</b> Verify that all blades are in working order before performing a switch reboot. Switch reboot is meant to be issued after all repairs are complete. If you perform a switch reboot and find a faulty blade, remove the blade and the reboot will continue.</p>
	<p><b>Workaround:</b> Identify and remove the faulty blade, using the slotshow command.</p>
Fabric routing, Fabric Manager: domain overlap	<p>Issuing a configdefault command followed by reboot or switch disable or enable can cause the fabric to segment, due to possible domain overlap.</p>
	<p><b>Workaround:</b> Before rebooting the fabric, ensure that all switches are properly configured to avoid domain overlap between the logical switches.</p>
Fabric Watch: e-mail alert error message	<p>If an event occurs while Fabric Watch e-mail alerts are being enabled, the message ErrLog: Error Level=3 [(null)] is captured to the system error log. This message is from SMTP and can be ignored.</p>
Firmware download	<p>Do not power down while performing a firmware download.</p>
Firmware download	<p>Fabric OS v4.1.x and v4.2.x nondisruptive firmware download allows for firmware downgrades and upgrades; however, you might see warning messages such as the following:</p> <pre data-bbox="447 1188 1264 1304">0x239 (fabos): Switch: 0, Info PDM-NOTFOUND, 4, File not found (/etc/fabos/mii.0.cfg)</pre> <p>These warnings can be ignored.</p>
HA switch reboot failure	<p>When a switch reboot or a failover occurs before POST is complete, the HA resynchronization is disrupted. HA does not resynchronize until POST completes.</p> <p><b>CAUTION:</b> Allow POST to complete before performing a switch reboot or failover, to avoid disruptive failover.</p>

**Table 5: Fabric OS Area Information (Continued)**

Fabric OS Area	Description
Invalid Gateway IP address error message	The user sees the following message on the console during startup when the Ethernet IP and Gateway IP addresses are set to the defaults:  SIOCADDRT: Invalid argument.....ip.c:311:Invalid gateway IP address 0.0.0.0  This is a display issue only and does not affect the functionality of the switch.
IP addresses	<b>CAUTION:</b> Do not set a switch or CP IP address for the Ethernet interface to 0.0.0.0.
License removal	When a user removes a license from the switch, the feature is not disabled until the switch is rebooted or a switch disable or enable is performed.
rsh and rlogin	The programs <code>rsh</code> and <code>rlogin</code> are not supported in this release. If you try to use an <code>rsh</code> or <code>rlogin</code> client, Fabric OS rejects the login attempt; however, because most <code>rsh</code> and <code>rlogin</code> clients continue to retry the login for several seconds before timing out, your system appears to hang.
Security: default password length	The initial login prompt for a switch accepts a maximum password length of eight characters. Any characters beyond the eighth are ignored.
Security: empty policies	<b>CAUTION:</b> If Telnet, API, and serial port access policies are empty, the user will not be able to communicate with the switch.  <b>Workaround:</b> Contact your switch provider for the recovery procedure.
Security: error counter	Telnet security errors that arrive in quick succession are recorded as a single violation by the Telnet error counter. For example, a login error from a host whose IP address is 192.168.44.247 is logged as follows:  <code>Security violation: Login failure attempt via TELNET/SSH/RSH. IP Addr: 192.168.44.247</code>  If another login violation occurs immediately, the message remains the same and only the error counter is incremented.

**Table 5: Fabric OS Area Information (Continued)**

Fabric OS Area	Description
Security: FCS list	Adding switches to the FCS list does not automatically join the switches in a secure fabric. Add the switches to the FCS list of the new switches and the target fabric. Reset the version stamp to 0 and either reset the E_Ports or perform a switch disable and enable for the switches to join.
Security: HTTP policy	If <code>HTTP_Policy</code> is empty, you will not be able to log in and will receive a <code>Page not found</code> error. This is expected behavior for this policy.
Security: invalid certificate	Web Tools and Fabric OS are not consistent in how they report switch certificate status. Web Tools reports a valid certificate with extra characters appended to it as invalid, whereas Fabric OS accepts the certificate and allows a <code>secmodeenable</code> command to complete successfully.
Security: PKICERT utility, CSR syntax	Before using the PKICERT utility to prepare a certificate signing request (CSR), ensure that there are no spaces in the switch names of any switches in the fabric. The web site that processes the CSRs and generates the digital certificates does not accept switch names containing spaces; CSRs that do not conform to this requirement are rejected.
Security: PKICERT utility, installing certificates	<p>PKICERT v1.0.6 is the most current version of the PKICERT utility. When running the PKICERT utility to install switch certificates in a fabric that did not previously contain switch certificates and now includes a SAN Director 2/128, select the option to specify that certificates are installed only on those switches that do not currently contain certificates. SAN Director 2/128s are delivered with switch certificates preinstalled. Switches that were originally shipped with Fabric OS v2.5, v3.0, and v4.0 and have never installed and enabled Secure Fabric OS do not have certificates installed.</p> <p>If you need to reinstall switch certificates in a SAN Director 2/128, follow these guidelines:</p> <ul style="list-style-type: none"> <li>■ The host running PKICERT 1.0.6 must be connected to a proxy switch running Fabric OS v2.6.2, v3.1.2, or v4.2.</li> <li>■ All switches in the fabric other than the SAN Director 2/128 can run v2.6.1, v3.1, v4.1 or newer firmware.</li> </ul>

**Table 5: Fabric OS Area Information (Continued)**

Fabric OS Area	Description
Security: selectelnet	<p>If you try to log in to a switch through a sectelnet client while that switch is in the process of either booting or shutting down, you might see the message, Random number generation failed. The message is printed by the sectelnet client because the switch Telnet service is not running (the service has either already been shut down, if the switch is shutting down, or is not yet established, if the switch is booting). If the switch is booting, wait a few seconds and try again.</p>
Security: secure mode, passwd Telnet	<p><b>CAUTION: Using the <code>passwd</code> Telnet command in secure mode to change the password results in all sessions using that password being logged out, including the session that changed the password.</b></p> <p>This is expected behavior. The session terminates if you change the password in secure mode.</p>
Security: SLAP counter	<p>The SLAP counter is designed to work when all the switches in the fabric are in secure mode. All the switches in the fabric must be in secure mode for accurate SLAP statistics.</p>
Security: SSH login	<p>To properly connect SSH login, wait for secure mode to complete before rebooting or performing HA failover on the SAN Director 2/128. If secure mode is enabled and a reboot occurs before secure mode completes, SSH login does not connect and goes to the wrong MAC address, because the active CP changes after an HA failover.</p>
Single domain	<p>The SAN Director 2/128 can be configured only as a single domain, as opposed to two logical domains in the Core Switch 2/64. In other words, all port blades and slots are a part of that single switch.</p>
Static Routing	<p>If a platform conflict condition occurs while you are assigning a static route with the <code>uRouteConfig</code> command, two similar warning messages may be displayed. The first one displays when the static routing feature detects the condition. The second one displays when the dynamic load sharing feature tries to rebalance the route and also sees the condition.</p>

**Table 5: Fabric OS Area Information (Continued)**

Fabric OS Area	Description
WWN card FRU repair	When performing an FRU replacement on a WWN card, complete the FRU procedure before attempting an HA failover or power cycling the chassis.
Zoning: license	<p>To use zoning in a non-RCS (reliable commit service) mode fabric (that is, in a fabric containing switches with firmware versions other than v2.6.x, v3.1, and v4.1), HP recommends that all appropriate zoning licenses be installed on all the switches in the fabric before attempting to bring a switch in to the fabric.</p> <p>If the zoning license is to be removed, the user must make sure it is reinstalled properly on the affected switch before attempting the <code>cfgenable</code> zoning operation.</p> <p>Failure to follow these steps can cause inconsistency of zoning configuration on the affected switches, if a zoning operation is attempted from a remote switch in the fabric. On the affected switches, an error message appears on the console or Telnet session (or by issuing the <code>errShow</code> or <code>errDump</code> command), indicating that the zoning license is missing.</p>

## New and Modified CLI Commands

The following commands have been added or modified since the Fabric OS version 4.1.x release in June, 2003.

- burninLevel
- configure
- portCfgGPort
- portCfgIs1Mode
- portCfgLongDistance
- portCfgShow
- setMfgMode
- spinJitter
- voltageMargin

### **burninLevel**

Sets the diagnostics burn-in level.

#### **Synopsis**

```
burninlevel [ level | -show ]
```

#### **Availability**

admin

#### **Description**

Use this command to select or display the burn-in level. When the burn-in level is set to a value other than 0, the diagnostic daemon program performs burn-in testing in place of the power-on self-test (POST) Phase II each time a switch blade is powered on. The mode becomes active as soon as this command is executed, so it does not require a reboot to take effect.

When a burn-in level other than 0 is selected, actual behavior is determined by the configuration of the diagnostics daemon and the burn-in scripts run.

A useful application of this command is to store errors on the local persistent error storage on which the error occurs. This happens when the burn-in level is other than 0. This preserves the errors prior to returning a board for service. For multibladed products, this is the independent blade, and for fixed-port-count products, this is the chassis-persistent storage. The error logs are viewed using the `burninErrShow` command.

## Operands

This command has the following operands:

- |                    |  |
|--------------------|--|
| <code>level</code> | The burn-in level sets to this value.  |
| <code>-show</code> | If specified, or if <code>level</code> is not specified, the current burn-in level setting displays. |

## Example

To set the diagnostic burn-in level:

```
switch:admin> burninlevel -show  
Burnin level is 0.
```

## See Also

- [burninErrShow](#)
- [burninName](#)
- [diagDisablePost](#)
- [diagEnablePost](#)
- [diagSetBurnin](#)

## configure

The following Domain, R\_A\_TOV, and E\_D\_TOV fields have changed, as follows:

Fields	Default	Range
Domain	1	varies
R_A_TOV	10000	E_D_TOV * 2 to 12000
E_D_TOV	2000	1000 to R_A_TOV / 2

## diagModeShow

Displays diagnostic mode configuration.

### Synopsis

diagmodeshow

### Availability

all users

### Description

Use this command to display the current settings for several diagnostic configuration parameters. This command is most often used by burn-in scripts to display a summary of the configuration settings that were in effect when the script was run.

---

**Note:** Any automated use of this command should rely on only the names of the specific variables, not on their exact positions in the output.

---

### Operands

None

## Example

To display the diagnostic mode:

```
switch:admin> diagModeShow
diag.mode* parameters saved in flash:

        diag.mode.burnin          = 0
        diag.mode.burnin.level    = 0
        diag.mode.burnin.firstPowerUp = Thu Feb 28 01:36:12
2002
        diag.mode.esd            = 0
        diag.mode.gbic           = 0
        diag.mode.splb           = 0
        diag.mode.lab            = 0
        diag.mode.mfg            = 0
        diag.mode.bplb           = 0
        diag.ports                = TEST (type=INDEX,
sz=512): 100.
        Burnin passnum          = 1
        Burnin nExec             = 0
        Silkworm Mode            = OFF
        Disable Modes Print      = OFF
```

---

## See Also

[burninLevel](#)

[diagEsdPorts](#)

[setEsdMode](#)

[setGbicMode](#)

[setLabMode](#)  
[setMfgMode](#)  
[setSplbMode](#)

## diagStatus

Displays diagnostic mode configuration.

### Synopsis

`diagstatus [ slotno ]`

### Availability

all users

### Description

Use this command to display currently running diagnostic test names.

### Operands

This command has the following operands:

<code>slotno</code>	Specifies the slot to display. If omitted, all blades in the system are assumed.
---------------------	--

### Example

To display currently running diagnostic tests:

```
switch:admin> diagstatus

Diagnostic status for slot: 1.
Diag executing "NONE"

Diagnostic status for slot: 2.
Diag executing "NONE"

Diagnostic status for slot: 3.
Diag executing "NONE"

Diagnostic status for slot: 4.
Diag executing "NONE"
--- <output truncated> ---
```

## miniCycle

Runs a functional test of internal and external transmit and receive paths at full speed.

### Synopsis

```
minicycle [--slot number] [-nmegs count] [-lb_mode  
mode] [-spd_mode mode]  
[-ports itemlist]
```

### Availability

admin

## Description

Use this command to verify the intended functional operation of an ASIC pair (miniswitch) at the maximum or selected speed by setting up the routing hardware so that frames received by port M are retransmitted by way of port N. Likewise, frames received by port N are retransmitted by way of port M. Each port M sends two frames to its partner, port N.

This test is run as a series of eight path tests. Each port on the ASIC pair exchanges frames with one port on the adjacent ASIC in the same miniswitch. At the end of a path test, the frames are captured and the routing is changed so that each port exchanges frames with the next port on the adjacent ASIC of the same miniswitch.

Unlike implementation of the `spinSilk` command, a port is exchanging frames with only one other port at a time under the `miniCycle` command. Just like with `spinSilk`, all ports are active and exchanging frames simultaneously with `miniCycle`.

The path number being tested determines the partner port N for each port M (bolded and italicized in the following example):

```
path 0: 0-8, 1-9, 2-10, 3-11, 4-12, 5-13, 6-14, 7-15  
path 1: 7-8, 0-9, 1-10, 2-11, 3-12, 4-13, 5-14, 6-15  
path 2: 6-8, 7-9, 0-10, 1-11, 2-12, 3-13, 4-14, 5-15  
path 3: 5-8, 6-9, 7-10, 0-11, 1-12, 2-13, 3-14, 4-15  
path 4: 4-8, 5-9, 6-10, 7-11, 0-12, 1-13, 2-14, 3-15  
path 5: 3-8, 4-9, 5-10, 6-11, 7-12, 0-13, 1-14, 2-15  
path 6: 2-8, 3-9, 4-10, 5-11, 6-12, 7-13, 0-14, 1-15  
path 7: 1-8, 2-9, 3-10, 4-11, 5-12, 6-13, 7-14, 0-15
```

---

**Note:** The port numbers are relative to the ASIC pair. This test does not route frames from one ASIC pair to another.

---

Ports cabled to other ports fail if port loopback mode is selected, and the port must have media and loopback plugs installed. For best coverage, you should use self-loopback plugs and port loopback mode (-lb\_mode 1), as each port's external connectivity will be tested.

The frames are continuously transmitted and received in all ports in parallel. The port LEDs flicker green rapidly while the test runs.

The path test method is as follows:

1. Clear port statistics and error counters.
2. Enable ports for specified self-loopback mode.
3. Configure the routing table so that when port M receives frames, the frames are routed back to the partner port N and vice versa.
4. Transmit two frames by way of port M and two frames by way of port N. The following four patterns will be used for the four frames, one pattern each:
  - 1000 bytes of CSPAT
  - 480 bytes of RDRAM\_PAT
  - 2112 bytes of BYTE\_LFSR
  - 200 bytes of RANDOM
5. Periodically check status to ensure that:
  - Each port has not died
  - Each port's frames-transmitted counter is still incrementing
  - Each port's statistic error counters are nonzero:  
`ENC_in, CRC_err, TruncFrm, FrmTooLong, BadEOF,  
Enc_out, BadOrdSet, DiscC3.`
6. Until one of the following is met:
  - The number of frames requested is met on all selected ports.
  - All ports are eventually marked bad
  - The user aborts the procedure

The path test is repeated for each path, unless it is aborted by a keyboard interrupt. The data is not read and checked as it is under the `portLoopbackTest` and `crossportTest` commands. There is no CPU intervention during a path test besides the periodic checks of the hardware counters. At the end of a path test, all statistics and routes are reset for the next path test.

An example of the data used is as follows:

```
CSPAT:      0x7e, 0x7e, 0x7e, 0x7e, ...
RDRAM_PAT:  0xff, 0x00, 0xff, 0x00, ...
BYTE_LFSR:   0x69, 0x01, 0x02, 0x05, ...
RANDOM:     0x25, 0x7f, 0x6e, 0x9a, ...
```

Because this test includes the media and the fiber cable loopback plug in its test path, its results combined with the results of `portLoopbackTest` and `spinSilk` can be used to determine which components of the switch are faulty.

## Operands

This command has the following operands:

<code>--slot number</code>	Specifies the slot number on which the diagnostics operate. The ports specified are relative to this slot number. The default is 0 and designed to operate on fixed-port-count products.
<code>-nmegs count</code>	Specifies the number of million frames to send per path test. The path test will progress until the specified number of frames has been transmitted on each port. The default value for <i>count</i> is 1, so the total number of frames sent will be at least 8 million (1 million frames * 8 paths).
<code>-lb_mode mode</code>	Selects the loopback point for the test. By default, <code>miniCycle</code> uses external (SERDES) loopback.

Mode	Description
1	Port loopback (loopback plugs)
2	External (SERDES) loopback
5	Internal (parallel) loopback
7	Backend bypass and port loopback
8	Backend bypass and SERDES loopback
9	Backend bypass and internal loopback

**-spd\_mode mode** Specifies the speed mode for the test. This parameter is only used for BLOOM-based products, for which this parameter controls the speed at which each port operates. For 1G-only products, this parameter is ignored. The exact operation of modes 3 through 6 depends on the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN->ODD or the test fails.

Mode	Description
0	Run test at both 1 Gb and 2 Gb
1	Set all ports' speed to lock at 1 Gb
2	Set all ports' speed to lock at 2 Gb (default)

If **-1b\_mode** is set to 1, the following speed modes are available to test the speed negotiation.

Mode	Description
3	Set all even ports' speed to autonegotiate. Set all odd ports' speed to 1 Gb/s
4	Set all even ports' speed to autonegotiate. Set all odd ports' speed to 2 Gb/s
5	Set all odd ports' speed to autonegotiate. Set all even ports' speed to 1 Gb/s
6	Set all odd ports' speed to autonegotiate. Set all even ports' speed to 2 Gb/s

If **-1b\_mode** is set to 2, the following speed modes are available to test FIFO underrun.

Mode	Description
3,5	Set all even ports' speed to 2 Gb/s Set all odd ports' speed to 1 Gb/s
4,6	Set all even ports' speed to 1 Gb/s Set all odd ports' speed to 2 Gb/s

**-ports *itemlist*** Specifies a list of blade ports to test. By default, all the blade ports in the specified slot. (**--slot**) will be used. Refer to *itemlist* for further details. If all ports in the ASIC-pair are not specified, only paths between selected ports are tested.

```
ASIC-pair 0: -ports 0-15  
ASIC-pair 1: -ports 16-31  
ASIC-pair 2: -ports 32-47  
ASIC-pair 3: -ports 48-63
```

### Example

To run a functional test on slot 1 using external (SERDES) loopback:

```
switch:admin> minicycle --slot 1 -lb_mode 2  
  
Running minicycle .....  
One moment please ...  
Path 0 ... Spinning ...  
Path 1 ... Spinning ...  
Path 2 ... Spinning ...  
Path 3 ... Spinning ...  
Path 4 ... Spinning ...  
Path 5 ... Spinning ...  
Path 6 ... Spinning ...  
Path 7 ... Spinning ...  
Test Complete: minicycle Pass 1 of 1  
Duration 0 hr, 1 min & 4 sec (0:1:4:409).  
passed.
```

To run a functional test on ports 0, 1, 2, and 8 using port loopback:

```
switch:admin> minicycle -ports 0,1,2,8 -lb_mode 1
Back Plane Loop Back mode is ON.

Running mini Cycle .....
One moment please ...
Path 0 ... Spinning ...
Path 1 ... skipped.
Path 2 ... skipped.
Path 3 ... skipped.
Path 4 ... skipped.
Path 5 ... skipped.
Path 6 ... Spinning ...
Path 7 ... Spinning ...
Test Complete: "minicycle" Pass 1 of 1
Duration 0 hr, 0 min & 23 sec (0:0:23:100).
passed.
```

## Diagnostics

When it detects failure(s), the test reports one or more of the following error messages:

DATA

EPI1\_STATUS\_ERR  
ERR\_STATS\_2LONG  
ERR\_STATS\_BADEOF  
ERR\_STATS\_BADOS  
ERR\_STATS\_C3DISC  
ERR\_STATS\_CRC  
ERR\_STATS\_ENCIN  
ERR\_STATS\_ENCOUT  
ERR\_STATS\_TRUNC

ERR\_STAT\_2LONG  
ERR\_STAT\_BADEOF  
ERR\_STAT\_BADOS  
ERR\_STAT\_C3DISC  
ERR\_STAT\_CRC  
ERR\_STAT\_ENCIN  
ERR\_STAT\_ENCOUT  
ERR\_STAT\_TRUNC  
FDET\_PERR  
FINISH\_MSG\_ERR  
FTPRT\_STATUS\_ERR  
INIT  
LESSN\_STATUS\_ERR  
MBUF\_STATE\_ERR  
MBUF\_STATUS\_ERR  
NO\_SEGMENT  
PORT\_ABSENT  
PORT\_DIED  
PORT\_ENABLE  
PORT\_M2M  
PORT\_STOPPED  
PORT\_WRONG  
RXQ\_FRAME\_ERR  
RXQ\_RAM\_PERR  
STATS  
STATS\_C3FRX  
STATS\_FRX  
STATS\_FTX  
TIMEOUT  
XMIT

### See Also

[backport](#)  
[camtest](#)  
[centralmemorytest](#)  
[cmemretentiontest](#)  
[cmitest](#)  
[crossporttest](#)  
[itemlist](#)  
[portloopbacktest](#)  
[portregtest](#)  
[spinsilk](#)  
[sramretentiontest](#)

### **portCfGPort**

On the SAN Switch 2/8 EL, a fabric license is required for the `portCfGPort` command to function properly; otherwise, a “fabric support required” message displays.

### **portCfgislmode**

The `portCfgislMode` and `portCfgLongDistance` commands cannot both be enabled at the same time; otherwise, fabric segmentation occurs.

**miniCycle**

Runs a functional test of internal and external transmit and receive paths at full speed.

**portCfgLongDistance**

The `portCfgIs1Mode` and `portCfgLongDistance` commands cannot both be enabled at the same time; otherwise, fabric segmentation occurs.

**portCfgShow**

The following has been added to the end of the display output descriptions:

“Disabled due to Buffer displays whenever the port is disabled due to lack of buffers. The value sets when available buffers in the associated quad are not enough to assign to this port, which usually results from configuration of long-distance ports in the quad.”

Locked Loop HD displays the half-duplex mode of this L\_Port. It only displays when providing the `[slotnumber/] [portnumber]`. Refer to `portCfgLongDistance` for more information.”

The following is an updated command output example:

```
switch:user> portcfgshow

Ports of Slot 1    0 1 2 3    4 5 6 7    8 9 10 11   12 13 14 15
-----+-----+-----+-----+-----+-----+-----+-----+
Speed          AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port      ... ... ... ...   ... ... ... ...   ... ... ... ...
Long Distance   ... ... ... ...   ... ... ... ...
VC Link Init    ... ... ... ...
Locked L_Port    ... ... ...
Locked G_Port    ... ...
Disabled E_Port  ...
ISL R_RDY Mode  ...
Persistent Disable... ...

Ports of Slot 4    0 1 2 3    4 5 6 7    8 9 10 11   12 13 14 15
-----+-----+-----+-----+-----+-----+-----+-----+
Speed          AN AN AN AN   AN AN AN AN   AN AN AN AN   AN AN AN AN
Trunk Port      ... ... ...
Long Distance   ... ... ...
VC Link Init    ... ...
Locked L_Port    ...
Locked G_Port    ...
Disabled E_Port  ...
ISL R_RDY Mode  ...
Persistent Disable... 
```

```
where AN:AutoNegotiate, ...:OFF, ?:INVALID.
```

```
switch:user> portcfgshow 4/15
Area Number: 63
Speed Level: AUTO
Trunk Port OFF
Long Distance OFF
VC Link Init OFF
Locked L_Port OFF
Locked G_Port OFF
Disabled E_Port OFF
ISL R_RDY Mode OFF
Persistent Disable OFF
Disabled due to Buffer NO
Locked Loop HD OFF
```

## **setMfgMode**

Sets or displays diagnostic MFG mode.

### **Synopsis**

```
setmfgmode [ mode | -show ]
```

### **Availability**

admin

## Description

This command enables MFG mode if mode is nonzero and disables the MFG mode if not. The mode is saved in flash memory and stays in that mode until the next execution of `setmfgmode`. The mode becomes active as soon as this command is executed; it does not require a reboot to take effect.

When enabled, MFG mode modifies the behavior of the diagnostic test methods and power-on self-test (POST) scripts. The exact behavior of this mode varies but most commonly consists of enabling extra manufacturing-specific tests and data patterns.

## Operands

This command has the following operands:

- |              |   |
|--------------|---|
| <i>mode</i>  | Specifies the MFG mode value. 0 disables MFG mode; any other value enables MFG mode |
| <i>-show</i> | If specified, or if no <i>mode</i> is given, the current MFG mode displays.         |

## Example

To display the current MFG mode:

```
switch:admin> setmfgmode -show
Mfg Mode is 0 (Disabled).
```

## spinJitter

Measures line-speed jitter.

### Synopsis

```
spinjitter [--slot number] [-nmegs count] [-lb_mode  
mode] [-spd_mode mode]  
[-ports itemlist]
```

## Availability

admin

## Description

This test uses the same procedures as **spinsilk** but with a special pattern for line-speed jitter measurement. The test uses the following pattern:

```
jCRPAT be d7 23 47 6b 8f b3 14 5e fb 35 59 be d7 23 47
```

For details about the procedures used in this test, refer to **spinsilk**.

## Operands

This command has the following operands:

- |                      |  |
|----------------------|--|
| --slot <i>number</i> | Specifies the slot number on which the diagnostics operate. The ports specified are relative to this slot number. The default is 0 and designed to operate on fixed-port-count products.           |
| -nmegs <i>count</i>  | Specifies the number of frames to send, in millions. The test progresses until the specified number of frames transmits on each port. The default value is 10, which represents 10 million frames. |
| -lb_mode <i>mode</i> | Selects the loopback point for the test. By default, spinJitter uses external (SERDES) loopback.   |

Mode	Description
0	Cable loopback
1	Port loopback (loopback plugs)
2	External (SERDES) loopback
3	Silkscreen loopback
5	Internal (parallel) loopback
0	Cable loopback

**-spd\_mode mode** Specifies the speed mode for the test. This parameter is only used for BLOOM-based products, for which this parameter controls the speed at which each port operates. For 1G-only products, this parameter is ignored. The exact operation of modes 3 through 6 depends on the loopback mode selected. When speed modes 3 through 6 are used with cables, they must be connected EVEN->ODD or the test fails.

Mode	Description
0	Run test at both 1 Gb and 2 Gb
1	Set all ports' speed to lock at 1 Gb
2	Set all ports' speed to lock at 2 Gb (default)

If **-1b\_mode** is set to 0,1, the following speed modes are available to test the speed negotiation.

Mode	Description
3	Set all even ports' speed to autonegotiate. Set all odd ports' speed to 1 Gb/s
4	Set all even ports' speed to autonegotiate. Set all odd ports' speed to 2 Gb/s
5	Set all odd ports' speed to autonegotiate. Set all even ports' speed to 1 Gb/s
6	Set all odd ports' speed to autonegotiate. Set all even ports' speed to 2 Gb/s

If **-1b\_mode** is set to 2,3, the following speed modes are available to test FIFO underrun.

Mode	Description
3,5	Set all even ports' speed to 2 Gb/s Set all odd ports' speed to 1 Gb/s
4,6	Set all even ports' speed to 1 Gb/s Set all odd ports' speed to 2 Gb/s

**-ports *itemlist*** Specifies a list of blade ports to test. By default, all the user ports in the specified slot. (**--slot**) will be used. Refer to *itemlist* for further details.

## Example

To measure line-speed jitter:

```
switch:admin> spinjitter -ports 1/0 - 1/2
Running SpinJitter ......

One moment please ...Ports Segmented (0)

switchName:      SW12000A
switchType:      10.1
switchState:     Offline
switchRole:      Disabled
switchDomain:    1 (unconfirmed)
switchId:        fffc01
switchWwn:       10:00:00:60:69:80:03:0c
switchBeacon:    OFF
blade1: Beacon: OFF
blade2: Beacon: OFF
blade3: Beacon: OFF
blade4: Beacon: OFF

Area Slot Port Gbic Speed State
=====
0   1   0   id   2G   Online   Testing  .....
1   1   1   id   2G   Online   Testing  .....
2   1   2   id   2G   Online   Testing  .....
--- <output truncated> ---
```

## Diagnostics

When it detects failure(s), the test might report one or more of the following error messages:

DATA  
EPI1\_STATUS\_ERR  
ERR\_STAT  
ERR\_STATS  
ERR\_STATS\_2LONG  
ERR\_STATS\_BADEOF  
ERR\_STATS\_BADOS  
ERR\_STATS\_C3DISC  
ERR\_STATS\_CRC  
ERR\_STATS\_ENCIN  
ERR\_STATS\_ENCOUT  
ERR\_STATS\_TRUNC  
ERR\_STAT\_2LONG  
ERR\_STAT\_BADEOF  
ERR\_STAT\_BADOS  
ERR\_STAT\_C3DISC  
ERR\_STAT\_CRC  
ERR\_STAT\_ENCIN  
ERR\_STAT\_ENCOUT  
ERR\_STAT\_TRUNC  
FDET\_PERR  
FINISH\_MSG\_ERR  
FTPRT\_STATUS\_ERR  
INIT  
LESSN\_STATUS\_ERR  
MBUF\_STATE\_ERR  
MBUF\_STATUS\_ERR

NO\_SEGMENT  
PORT\_ABSENT  
PORT\_DIED  
PORT\_ENABLE  
PORT\_M2M  
PORT\_STOPPED  
PORT\_WRONG  
RXQ\_FRAME\_ERR  
RXQ\_RAM\_PERR  
STATS  
STATS\_C3FRX  
STATS\_FRX  
STATS\_FTX  
TIMEOUT  
XMIT

### See Also

[backport](#)  
[camtest](#)  
[centralmemorytest](#)  
[cmemretentiontest](#)  
[cmitest](#)  
[crossporttest](#)  
[itemlist](#)  
[portloopbacktest](#)  
[portregtest](#)  
[spinsilk](#)  
[sramretentiontest](#)

**statsClear**

Clears port and diagnostic statistics.

**Synopsis**

```
statsclear [--slot number] [-uports itemlist] [-bports itemlist] [-use_bports value]
```

**Availability**

admin

**Description**

Use this command to clear the port and diagnostics statistics for the specified list of blade or user ports.

**Operands**

This command has the following operands:

<code>--slot <i>number</i></code>	Specifies which slot to operate on. If this option is not specified, the default slot is assumed. The default slot is 0 and designed to operate on fixed-port-count products, if <code>-use_bports</code> is set with non zero value.
<code>-uports <i>itemlist</i></code>	Specifies the list of user ports to clear.
<code>-bports <i>itemlist</i></code>	Specifies the list of blade ports to clear.
<code>-use_bports <i>value</i></code>	If <i>value</i> is nonzero, then the diagnostics statistics for the blade ports specified in <code>-bports</code> clears; otherwise, the user ports specified in <code>-uports</code> clears. The default value is 0.

**Example**

To clear port and diagnostic statistics:

```
switch:admin> statsclear -bports 1/10-1/62 -use_bports 1
```

**See Also**[itemlist](#)**voltageMargin**

Sets the slot voltage margin.

**Synopsis**

```
voltagemargin [--slot number] -margin value
```

**Availability**

admin

**Description**

Use this command to set the voltage margin for a slot that can be specified by --slot.

**Operands**

This command has the following operands:

- |                      |   |
|----------------------|---|
| --slot <i>number</i> | If specified, the slot voltage margin sets. The default is 0 and is designed to operate on fixed-port-count products. |
| -margin <i>value</i> | Specifies the margin value. <i>value</i> must be HIGH, LOW, or NOMINAL.   |

**Example**

To set the voltage margin on slot 3 to LOW:

```
switch:admin> voltagemargin --slot 3 -margin LOW
```

## Documentation Updates

This section provides information on last-minute additions or corrections to documentation.

### ***HP StorageWorks SAN Switch 2/8V and 2/16V Installation Guide***

Replace Table 10 and its table heading on page 58 with the following:

**Table11: System Power and Status LED Patterns During Normal Operation**

LED Name, Location	LED Color	Hardware Status	Recommended Action
System Power  Bottom LED to the right of the serial port	No light	Switch is off or failure of both power supplies in SAN Switch 2/16V.	Verify system power.
	Steady green	Switch is on and power supplies are functioning properly.	No action required.
	Steady amber	One power supply failure in SAN Switch 2/16V.	No action required.
System Status  Top LED to the right of the serial port	No light	Switch is off or failure of both power supplies in SAN Switch 2/16V.	Verify system power.
	Steady green	Switch is on and all ports are ready for use.	No action required.
	Steady amber	One or more ports are offline.	Verify switch has completed booting sequence and is not disabled. If LED remains amber, check error log and port status LEDs.

LED Name, Location	LED Color	Hardware Status	Recommended Action
	Slow-flashing amber/green (amber 1 second, then green 1 second)	At least one of the following is true: <ul style="list-style-type: none"><li>■ One or more environmental ranges are exceeded</li><li>■ Error log contains one or more port diagnostic error messages</li></ul>	<ol style="list-style-type: none"><li>1. Check environmental conditions, error log, port status LEDs, transceivers, cables, and loopback plugs.</li><li>2. Correct error condition.</li><li>3. Clear error log.</li><li>4. Rerun diagnostics to verify error condition is fixed.</li></ol>

Replace Table 12 on page 62 with the following:

**Table12: Ethernet LED Patterns**

LED Name, Location	LED Color	Status of Hardware	Recommended Action
Ethernet speed Below port on right	No light	Port speed is 10 Mb/s	No action required.
	Steady green	Port speed is 100 Mb/s	No action required.
Ethernet link Below port on right	Steady Amber	Link is valid	No action required.
	Flashing amber (on 1/2 second, off, then off 1/2 second)	Link has traffic	No action required.

## ***HP StorageWorks SAN Director 2/128 Installation Guide***

Replace Table 12 on page 95 with the following:

**Table 12: WWN Bezel LED Patterns**

<b>LED Name, Location</b>	<b>LED Color</b>	<b>Status of Hardware</b>	<b>Recommended Action</b>
16-Port card/CP card Power	Steady green	Power is OK	No action required.
	Flashing green	Power to port card is OK; however, this LED flashes if the port card status LED is flashing.	Check port card status LED and determine if it is flashing slow (2 second increments) or fast (1/2 second increments) and then take appropriate action.
	No light (LED is OFF)	No port card present or power source is unavailable.	Insert port card, or check AC switch or power source.
	Check the individual port card (see Figure 15 on page 81) or CP card power LEDs (see Figure 16 on page 85) on the port side of the chassis to confirm the LED patterns.		
16-Port card/CP card Status	Steady Amber	Port card is faulty.	Check port card.
	Slow-flashing amber (on 2 seconds; then off 2 second)	Port card is not seated correctly or is faulty.	Pull card out and reseat it. If LED continues to flash, replace card.
	Fast-flashing amber (on 1/2 second, off; then off 1/2 second)	Environmental range exceeded or port card failed diagnostics (run during POST or manually).	Check for out-of-bounds environmental range and correct it. Replace card if it fails diagnostics.
	No light (LED is OFF)	Port card is either healthy or does not have power.	Verify that the port card power LED is on.
	<b>Note:</b> Check the individual port card (see Figure 15 on page 81) or CP card status LEDs (see Figure 16 on page 85) on the port side of the chassis to confirm the LED patterns.		

LED Name, Location	LED Color	Status of Hardware	Recommended Action
Power supply/ Power/Status	Steady green	Power is OK.	No action required.
	Steady amber	Power supply is faulty.	Ensure that the correct AC power switch is on and the power supply is seated. If LED remains on, replace the power supply.
	Slow-flashing amber	FRU header (SEEPROM cannot be read) due to I2C problem.	Replace power supply.
	Fast-flashing amber	Power supply is about to fail due to failing fan inside the power supply.	Replace power supply.
	No light (LED is OFF)	No power supply present or is not inserted/seated properly, or power source is unavailable.	Insert power supply module, ensure it is seated properly, or check AC switch or power source.
	<p><b>Note:</b> Check the individual power supply LEDs (see Figure 17 on page 88) on the port side of the chassis to confirm the LED patterns.</p>		

**Note:** If a port card slot or power supply bay has a filler panel installed, the corresponding LEDs on the WWN card do not light up.

## **HP StorageWorks Fabric OS 4.2.x Features User Guide**

On page 80, replace the following note:

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**Note:** Long distance between the SAN Switch 2/8 EL, SAN Switch 2/8V, SAN Switch 2/16, SAN Switch 2/16V, SAN Switch 2/16N, SAN Switch 2/32, Core Switch 2/64, and SAN Director 2/128 ports is not supported when the long distance fabric-wide parameter `fabric.ops.mode.longDistance` is set.

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with this note:

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**Note:** Long distance between the SAN Switch 2/8 EL, SAN Switch 2/8V, SAN Switch 2/16, SAN Switch 2/16V, SAN Switch 2/16N, SAN Switch 2/32, Core Switch 2/64, and SAN Director 2/128 ports is not supported when the long-distance fabric-wide parameter `fabric.ops.mode.longDistance` is set, except in specific cases. If you find it necessary to set this parameter, contact your switch provider for information about supported configurations.

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